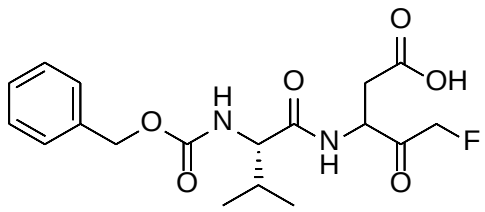
Product data sheet

MedKoo Cat#: 471029 Name: MX1013 CAS: 582316-00-5 Chemical Formula: $C_{18}H_{23}FN_2O_6$ Exact Mass: 382.154 Molecular Weight: 382.3884	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
MX1013 is a dipeptide pan-caspase inhibitor that inhibits caspase-1, caspase-3, and caspase-6, -7, -8, and -9.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMF	30.0	78.45
DMSO	30.0	78.45
DMSO:PBS (pH 7.2) (1:4)	0.2	0.52
Ethanol	10.0	26.15

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	2.62 mL	13.08 mL	26.15 mL
5 mM	0.52 mL	2.62 mL	5.23 mL
10 mM	0.26 mL	1.31 mL	2.62 mL
50 mM	0.05 mL	0.26 mL	0.52 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

Yang W, Guastella J, Huang JC, Wang Y, Zhang L, Xue D, Tran M, Woodward R, Kasibhatla S, Tseng B, Drewe J, Cai SX. MX1013, a dipeptide caspase inhibitor with potent in vivo antiapoptotic activity. Br J Pharmacol. 2003 Sep;140(2):402-12. doi: 10.1038/sj.bjp.0705450. Epub 2003 Aug 26. PMID: 12970077; PMCID: PMC1574042.

In vivo study

Yang W, Guastella J, Huang JC, Wang Y, Zhang L, Xue D, Tran M, Woodward R, Kasibhatla S, Tseng B, Drewe J, Cai SX. MX1013, a dipeptide caspase inhibitor with potent in vivo antiapoptotic activity. Br J Pharmacol. 2003 Sep;140(2):402-12. doi: 10.1038/sj.bjp.0705450. Epub 2003 Aug 26. PMID: 12970077; PMCID: PMC1574042.

7. Bioactivity
Biological target:

MX1013 is a potent, irreversible dipeptide caspase inhibitor vith antiapoptotic activity. MX1013 inhibits recombinant human caspase 3 with an IC_{50} of 30 nM.

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In vitro activity

MX1013 inhibits caspases 1, 3, 6, 7, 8, and 9, with IC50 values ranging from 5 to 20 nm. MX1013 is selective for caspases, and is a poor inhibitor of noncaspase proteases, such as cathepsin B, calpain I, or Factor Xa (IC50 values >10 microm). In several cell culture models of apoptosis, including caspase 3 processing, PARP cleavage, and DNA fragmentation, MX1013 is more active than tetrapeptide- and tripeptide-based caspase inhibitors, and blocked apoptosis at concentrations as low as 0.5 microm. MX1013 is more aqueous soluble than tripeptide-based caspase inhibitors such as Z-VAD-fmk.

Reference: Br J Pharmacol. 2003 Sep;140(2):402-12. https://pubmed.ncbi.nlm.nih.gov/12970077/

In vivo activity

At a dose of 1 mg kg-1 i.v., MX1013 prevented liver damage and the lethality caused by Fas death receptor activation in the anti-Fas mouse-liver apoptosis model, a widely used model of liver failure. 6. At a dose of 20 mg kg-1 (i.v. bolus) followed by i.v. infusion for 6 or 12 h, MX1013 reduced cortical damage by approximately 50% in a model of brain ischemia/reperfusion injury. At a dose of 20 mg kg-1 (i.v. bolus) followed by i.v. infusion for 12 h, MX1013 reduced heart damage by approximately 50% in a model of acute myocardial infarction.

Reference: Br J Pharmacol. 2003 Sep;140(2):402-12. https://pubmed.ncbi.nlm.nih.gov/12970077/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.